NASA'S MISSION TO PLANET EARTH

EARTH PROBES

DATA INFORMATION SYSTEM

EOS

EARTH OBSERVING SYSTEM

V0 Data Migration
Tom Dopplick

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V0 Data Migration Topics

- **External Interactions**

- **Key Drivers**

- **Assumptions**

- **Organization**

- **Methodology**

- **Incremental Migration**

- **Data Migration Plan**

- **Open Issues**

Interactions with DAACs and ESDIS

- **DAAC Manager Meetings**

- **DAAC User Working Group Meetings**

- **ECS DAAC Scientists and Engineers routine interactions with DAAC staff**

- **V0 Data Migration Workshop**

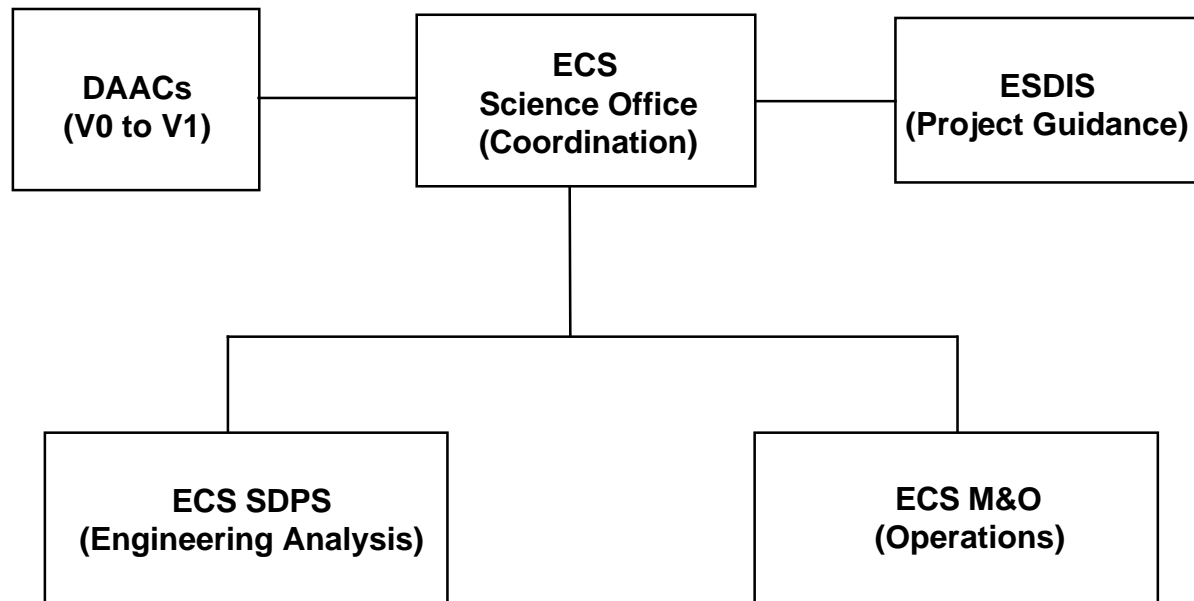- **Weekly meetings with Greg Hunolt/ESDIS**
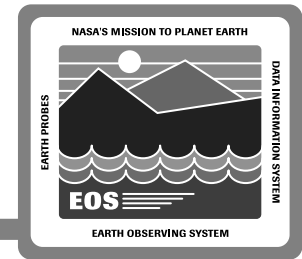
Data Migration Key Drivers

- **User Satisfaction**
  - **No degradation in existing services**
  - **Prepare for enhanced ECS services**
  - **Smooth transition from V0 to V1**

- **Operations**
  - **Automate data integrity assurance process**
  - **Refresh DAAC archives**
  - **Minimize risk and disruption to ongoing operations**
  - **Floor space problems in 98-99**

- **Technical**
  - **Support and leverage data modeling effort**

- **Programmatic**
  - **Move toward compliance with Federal Geographic Data Committee standards**
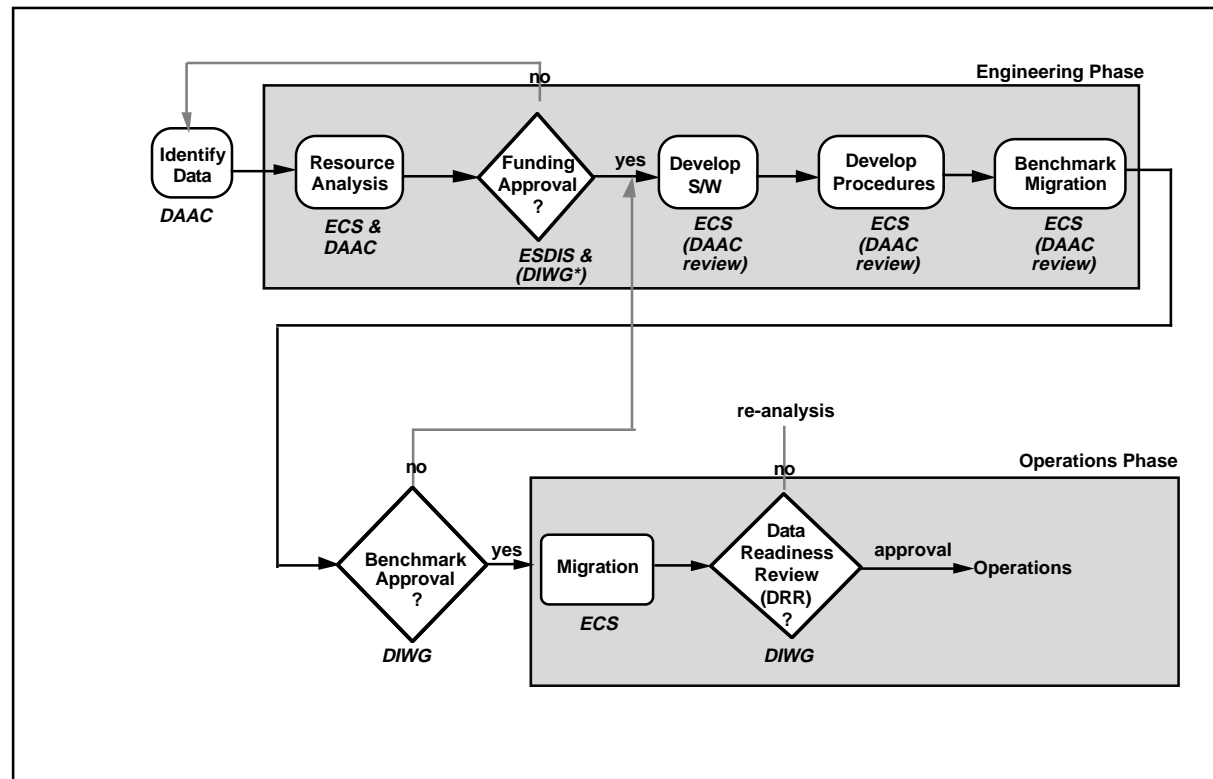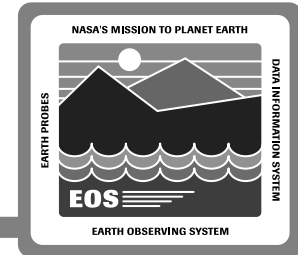
Data Migration Assumptions

1) Data are always available from V1 (V0 + ECS)

2) Gradual transition of V0 to ECS services - not turnkey

3) Data migrate to V1 at the current level of service or higher

4) Science Data Plan defines candidates for migration

5) Release A data require no billing

6) Data migration plans being developed jointly between the DAAC, ESDIS, and ECS

7) Assume that data migration begins at initial Release A Operations (late 1996) and concludes at end of Release B operations (late 1999)

Organization

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┌─────────────────┐     ┌─────────────────┐     ┌─────────────────┐
│     DAACs       │─────│      ECS        │─────│     ESDIS       │
│   (V0 to V1)    │     │ Science Office  │     │(Project Guidance)│
│                 │     │ (Coordination)  │     │                 │
└─────────────────┘     └─────────────────┘     └─────────────────┘
                                 │
                    ┌────────────┴────────────┐
            ┌───────────────┐         ┌───────────────┐
            │   ECS SDPS    │         │   ECS M&O     │
            │(Engineering   │         │ (Operations)  │
            │  Analysis)    │         │               │
            └───────────────┘         └───────────────┘
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Methodology for Migrating V0 Data

Engineering Phase

Identify Data
DAAC

Resource Analysis
ECS & DAAC

Funding Approval ?
ESDIS & (DIWG)*

— no

— yes

Develop S/W
ECS (DAAC review)

Develop Procedures
ECS (DAAC review)

Benchmark Migration
ECS (DAAC review)

Operations Phase

Benchmark Approval ?
DIWG

— no

— yes

Migration
ECS

Data Readiness Review (DRR) ?
DIWG

re-analysis

— no

approval → Operations

• **Ad Hoc Data Integration Working Group (DIWG)**
- **DAAC Mgt, DAAC Science, ESDIS, ECS**
• **Data Migration process documented in Data Migration Plan**

Incremental Migration
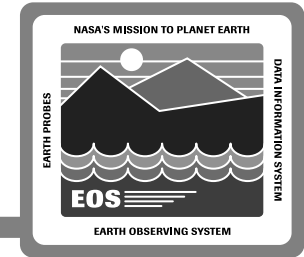
Migration Step	# Data Sets	Notes
Pilot Migration	at least 1 data product per DAAC	- sample granules; not operational
Release A Data Sets	3 data sets per Release A DAAC	- operational migration at start of Release A
High Priority Data Sets	about 180 data sets	- operational migration during Release A and Release B
Remaining V0 Data Sets	about 435 data sets	- operational migration completed by end of Release B

Pilot Data Migration
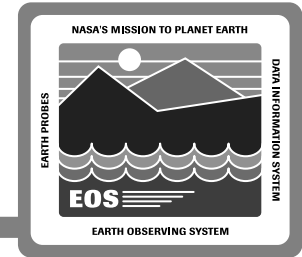
- **Prototype data migration to understand resource impact**

- **<u>NOT</u> intended to be for operational use**

- **Technical analysis of 15-20 data sets; translation to HDF for selected data sets**

- **Pilot Data Migration candidates were suggested by ECS to provide breadth of data types and support system test scenarios**

- **DAAC reviewed candidates and, in some cases, suggested alternatives**

- **Shadow migration of 4D Assimilation data into GSFC DAAC**

Release A Data Sets
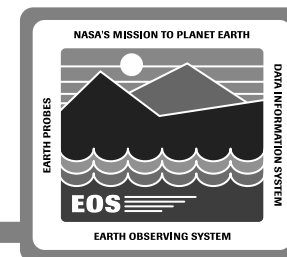
Volume

GSFC: 842 GB (CZCS 600 GB)

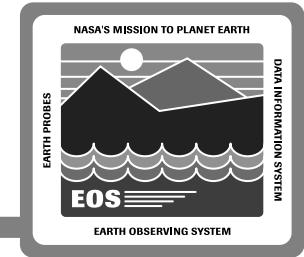**LaRC: 784 GB (ISCCP Dx 600 GB)**

MSFC 193 GB

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TOTAL 1819 GB

DAAC	Data Set
GSFC	TOMS-nimbus 7
GSFC	CZCS level 1
GSFC	AVHRR Pathfinder
LaRC	ERBE
LaRC	ISCCP D-x, D-1,D-2
LaRC	SAGE II level 2&3
MSFC	SSM/I Pathfinder
MSFC	TOVS Pathfinder
MSFC	SMMR Pathfinder

Data MigrationTimeline

	Calendar Year					
	1995	1996	1997	1998	1999	2000

Pilot Migration

Engineering Anaysis Phase
  Release A data sets
  High Priority data sets
  Remaining data sets

Operations Phase
  Release A data sets
  High Priority data sets
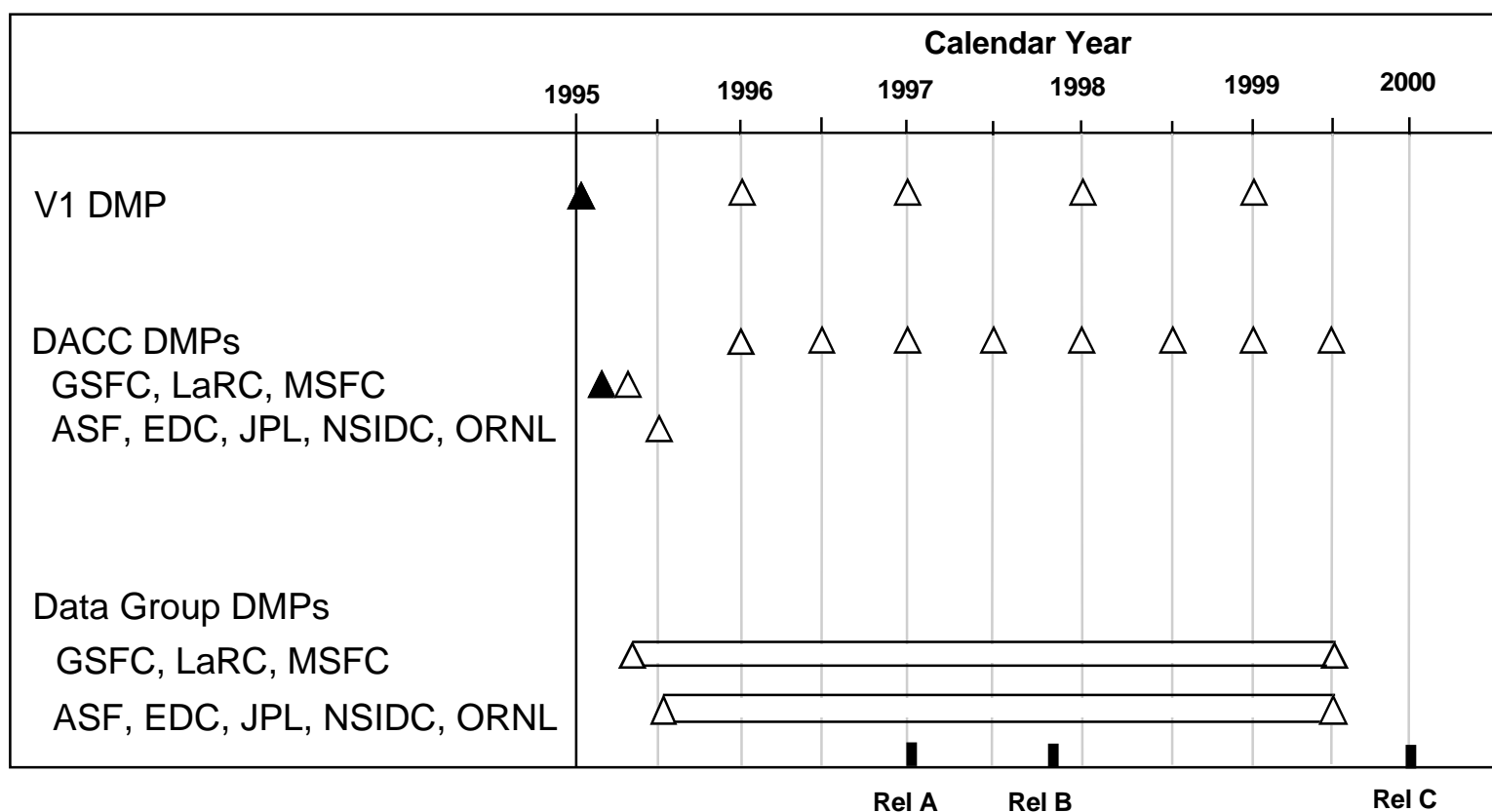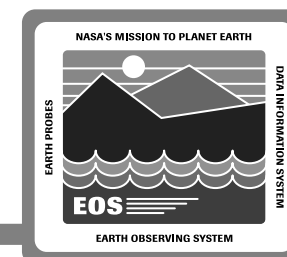 Remaining data sets

Rel A   Rel B   Rel C

Data Migration Plan Hierarchy

- High level DAAC Migration Plan and lower level data "group" plans
- DMP will point to many other references
- Living document

Draft GSFC DMP

URL: http://edhs1.gsfc.nasa.gov

V1 DMP

DAAC DMP

Data Group DMP

Data Group DMP

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Data Group DMP
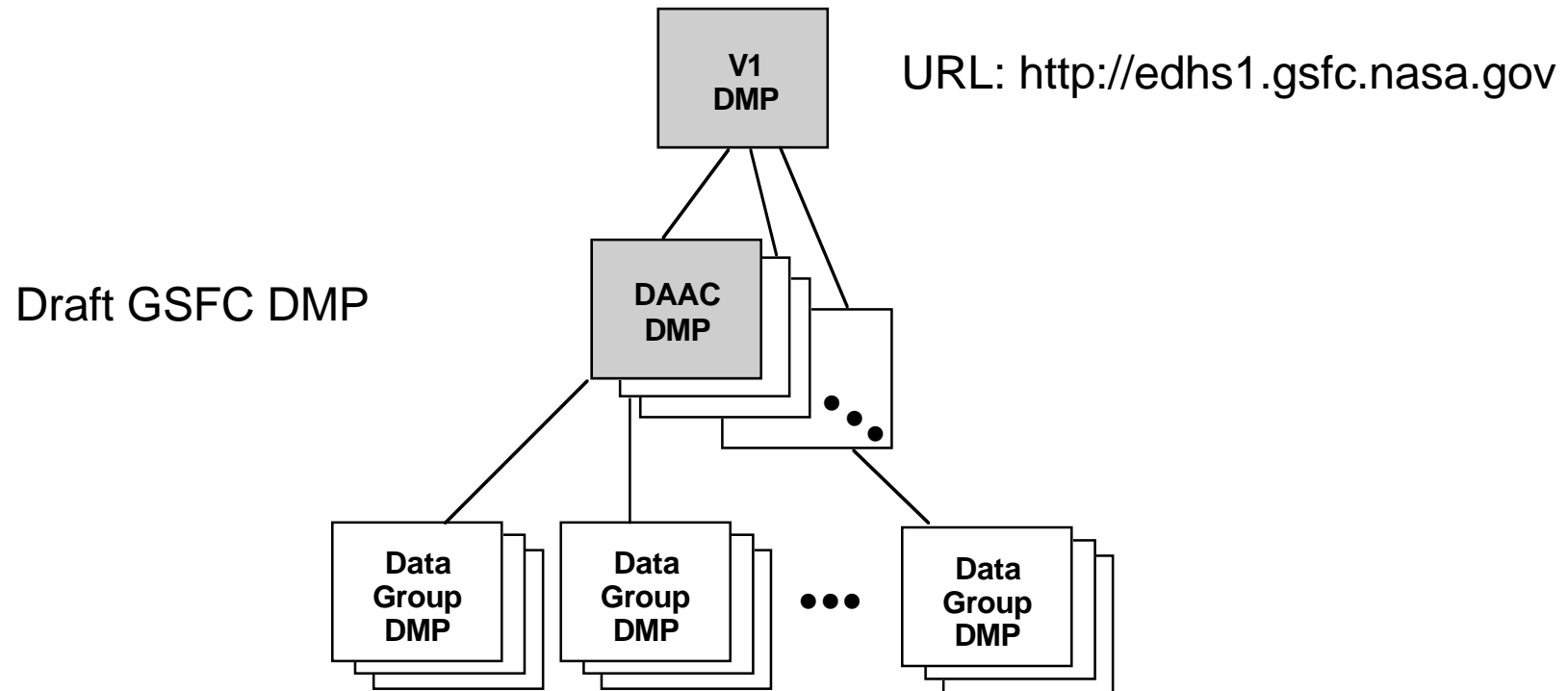
Data Migration Plan Timeline

Calendar Year

	1995	1996	1997	1998	1999	2000

Rel A   Rel B   Rel C

Open Issues

- **No ECS archive capability until Release A installation and acceptance**

- **High priority data sets need further stratification**

- **ECS and DAAC responsibilities need to be better delineated**

- **Processing workloads for migration need to be identified for each DAAC**